



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Pilliar et al.  
Appl. No. : 10/617,358  
Filed : July 11, 2003

Title : METHOD OF MANUFACTURE OF POROUS INORGANIC  
STRUCTURES AND INFILTRATION WITH ORGANIC POLYMERS

Grp./A.U. : 1791  
Examiner : Lopez, Carlos N.

Docket No.: 14396

Honorable Commissioner of Patents  
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 C.F.R. § 1.132**

Sir:

In accordance with 37 C.F.R. § 1.132, the Applicants submit the following evidence to traverse the rejection of the claims of the above-referenced patent application set forth in a final Office action dated May 21, 2008.

The declaration is made by Dr. Robert Mathews Pilliar, an inventor of the application, as well as a co-author of an article entitled "On the sintering characteristics of calcium phosphates." (Filiaggi et al. Key Engineering Materials. Vols. 192-195, pages 171-174. 2001.) The Examiner is currently rejecting the pending claims over this Filiaggi reference, and this declaration of Dr. Pilliar is submitted to traverse the rejection.

**Declaration of Dr. Robert Mathews Pilliar**

I, Robert Mathews Pilliar, a citizen of Canada, residing at 56 Rochester Avenue, Toronto, Ontario M4N 1N8 Canada, do hereby state as follows:

**I. Education**

I received a Bachelor of Science Degree with Honours in Engineering Physics from the University of Toronto in Toronto, Canada in 1961. I then went on to receive a Doctorate Degree from Leeds University in Leeds, England in 1965. I also completed a two-year post doctorate fellowship in metallurgy at McMaster University in Hamilton, Canada, in 1968.

**II. Experience**

I am currently a Professor Emeritus in Faculty of Dentistry at the University of Toronto, and I also work with the Department of Materials Science & Engineering and the Institute of Biomaterials & Biomedical Engineering at the University of Toronto. I am also presently an Adjunct Professor at the University of Waterloo in Canada.

In addition to teaching, I was a Research Engineer at the Paul D. Merica Research Laboratory for International Nickel Co. Inc. in Suffern, New York. I was also a Research Scientist at

the Ontario Research Foundation in Mississauga, Ontario. In addition, I served on the Board of Directors for the Innovations Foundation from 1987-1996.

### **III. Awards**

In 2000, I received an award for Excellence in Symposium & Publication Management from ASTM. I also received the Clemson Award for Applied Biomaterials Research from the Society of Biomaterials in the United States in 1989.

### **III. Publications and Patents**

I have authored hundreds of articles, which have been published in numerous refereed journals including *Materials Science, Engineering Digest, Engineering in Medicine, Journal of Biomedical Materials Research, Journal of Bone & Joint Surgery,* and *The International Journal of Artificial Organs.* I also co-edited a book entitled, "Cobalt-Based Alloys for Biomedical Applications," which was published in 1999

In addition to my publications, I have received three US patents, and I have other US patent applications pending. I have also received patents in Canada, the United Kingdom, France, and Switzerland.

**IV. The Filiaggi reference does not disclose a 2-step sintering process whereby samples are held at a steady temperature during the step-1 sinter treatment.**

I was involved with the development of a 2-step sintering process for calcium polyphosphate particles as disclosed and claimed in the present application, and, as stated above, I also co-authored the Filiaggi publication disclosing another sintering process, and this Filiaggi publication is cited against the present claims. The method for forming porous calcium polyphosphate (CPP) samples disclosed in the Filiaggi publication involved annealing CPP particles at selected heating rates continuously to a final sintering temperature in order to achieve a porous sintered structure. The study had as its primary objective, the determination of mechanisms involved during sintering of CPP particles.

Distinct from this was the *2-step sintering treatment* described in the present patent application. In the claimed process, samples are first held at a steady temperature between 570 to 600°C generally for one hour to allow a desired degree of densification to develop followed by a higher temperature step-2 anneal for an additional hour or so in which crystallization of the pre-sintered CPP occurs thereby yielding a thermodynamically more stable structure. Such a 2-step process was not considered in the earlier study reported by Filiaggi et al. The 2-step

sintering process described by the present application teaches a practical method for reproducibly forming CPP samples of desired density and mechanical properties.

**V. Declaration**

The undersigned being warned that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements and the like may jeopardize the validity of the application and or any patent issuing therefrom, declares that all statements made of my own knowledge are true and all statements made on information and belief are believed to be true.

Respectfully submitted,

By:   



Robert Mathews Pilliar

Date: June 25, 2008

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